AMENDMENTS TO THE CLAIMS

1. (Original) A printing device comprising:

at least one print head for image-wise forming dots of a marking substance at a printing pitch P on an image-receiving member in relation to a pattern of image pixels, said print head comprising a plurality of N discharging elements being arranged in at least one linear array, being spaced at a predetermined element pitch, and being composed of at least a first group of discharging elements which, in operation, image-wise form dots of a marking substance of a first size and a second group of discharging elements which, in operation, image-wise form dots of a marking substance of a second size different from said first size, on said image-receiving member;

displacement means for displacing said image-receiving member in the sub scanning direction;

selecting means for selecting a print mask defining a number of S printing stages required to completely render said pattern of image pixels, S being an integer number of at least 2; and

control means for controlling said displacement means and for controlling said plurality of N discharging elements;

wherein in operation, to limit the visibility of systematic banding artifacts in the sub scanning direction, on the basis of the difference between said first size and said second size, said control means controls said displacement means such that said image receiving member is displaced over a distance of M and selects an effective number of discharging elements N_{eff} of said plurality of N discharging elements for image-wise activation, where $N_{eff} \leq N$.

2. (Currently Amended) The printing device as recited in claim 1, wherein, ~~on the basis~~ based on of the number of available discharging elements N, means are provided for determining said distance M and said effective number of discharging elements $N_{eff,}$ ~~are determined~~ by combining at least said number of printing stages S, a certain number q of said groups of discharging elements, the printing pitch and the element pitch.

3. (Original) The printing device as recited in claim 1, wherein the following conditions are satisfied:

$N_{eff} = S \times [(n \times q) + 1] \times d$,

$S \times M = N_{eff} \times p \times P$, and

$p = 1$,

wherein n is an integer greater than or equal to 1,

p is a ratio between the element pitch and the printing pitch P,

d is a defect number and is defined as the number of subsequent printed image dots in the sub scanning direction originating from the same group of discharging elements when executing all the passes required to image-wise render all the pixels in the main scanning direction, and

q is a number of groups of nozzles yielding image dots with different sizes.

4. (Original) The printing device as recited in claim 3, further comprising scanning means for scanning said print head in the main scanning direction.

5. (Original) The printing device as recited in claim 1, wherein a ratio between the element pitch and the printing pitch is an integer number p of at least 2.

6. (Original)The printing device as recited in claim 5, wherein the following conditions are satisfied:

$p \times N_{eff} = S \times [((n \times q) + 1) \times (p \times d) + f]$, and

$S \times M = N_{eff} \times p \times P$,

wherein n is an integer number greater than or equal to 1,

f is a non-zero integer number defined as the minimal offset, expressed in number of positions in the print mask, between two subsequent printing stages,

d is a defect number and is defined as the number of subsequent printed image dots in the sub scanning direction originating from the same group of discharging elements when executing all the passes required to render all the pixels in the main scanning direction, and

q is a number of groups of nozzles yielding image dots with different sizes.

7. (Original)The printing device as recited in claim 6, wherein said print head has a width equal to or larger than the width of the image-receiving member.

8. (Original) The printing device as recited in claim 1, wherein said print head comprises a plurality of N discharging elements arranged in at least a first and a second linear array.

9. (Original)The printing device as recited in claim 8, wherein said first linear array is composed of said first group of discharging elements and said second linear array is composed of said second group of discharging elements.

10. (Original)The printing device as recited in claim 1, wherein said at least one print head includes:

a first print head of a colour and at least a second print head of said colour, which together comprise a plurality of N discharging elements being arranged in at least one linear array on said first print head and at least one linear array on said second print head.

11. (Original) The printing device as recited in claim 10, wherein the discharging elements of said first print head form said first group and the discharging elements of said second print head form said second group.

12. (Original) A method for image-wise forming dots of a marking substance at a printing pitch P on an image-receiving member in relation to a pattern of image pixels with a printing device comprising at least one print head, said print head comprising a plurality of N discharging elements being arranged in at least one linear array, being spaced at a predetermined element pitch, and being composed of at least a first group of discharging elements which, in operation, image-wise form dots of a marking substance of a first size and a second group of discharging elements which, in operation, image-wise form dots of a marking substance of a second size

different from said first size, on said image-receiving member, said method comprising the steps of:

selecting a print mask defining a number S and a sequence of printing stages required to completely render said pattern of image pixels, S being an integer number of at least 2;

image-wise activating on the basis of said print mask at least a part of an effective number of discharging elements N_{eff}, where $N_{eff} \leq N$; and

intermittently displacing on the basis of said print mask said image-receiving member in the sub-scanning direction over a distance M;

wherein said distance M is determined and said effective number of discharging elements N_{eff} is selected from said plurality of N discharging elements on the basis of the difference between said first size and said second size in order to limit the visibility of systematic banding artifacts in the sub scanning direction.

13. (Currently Amended) The method as recited in claim 12, wherein means are provided for determining said distance M and said effective number of discharging elements N_{eff}, ~~are determined~~ by combining at least said number of printing stages S, a certain number q of said groups of discharging elements, the printing pitch and the element pitch.

14. (Original) The method as recited in claim 12, wherein the following conditions are satisfied:

$N_{eff} = S \times [(n \times q) + 1] \times d$,

$S \times M = N_{eff} \times p \times P$, and

$p = 1$,

wherein n is an integer greater than or equal to 1,

p is a ratio between the element pitch and the printing pitch P,

d is a defect number and is defined as the number of subsequent printed image dots in the sub scanning direction originating from the same group of discharging elements when executing all the passes required to image-wise render all the pixels in the main scanning direction, and

q is a number of groups of nozzles yielding image dots with different sizes.

15. (Original)The method as recited in claim 12, wherein a ratio between the element pitch and the printing pitch is an integer number p of at least 2.

16. (Original)The method as recited in claim 15, wherein the following conditions are satisfied:

$p \times N_{eff} = S \times [((n \times q) + 1) \times (p \times d) + f]$, and

$S \times M = N_{eff} \times p \times P$,

wherein n is an integer number greater than or equal to 1,

f is a non-zero integer number defined as the minimal offset, expressed in number of positions in the print mask, between two subsequent printing stages,

d is a defect number and is defined as the number of subsequent printed image dots in the sub scanning direction originating from the same group of discharging elements when executing all the passes required to render all the pixels in the main scanning direction, and

q is a number of groups of nozzles yielding image dots with different sizes.

17. (Original)A computer program product embodied on at least one computer readable medium, for image-wise forming dots of a marking substance at a printing pitch P on an image-receiving member in relation to a pattern of image pixels with a printing device comprising at least one print head, said print head comprising a plurality of N discharging elements being arranged in at least one linear array, being spaced at a predetermined element pitch, and being composed of at least a first group of discharging elements which, in operation, image-wise form dots of a marking substance of a first size and a second group of discharging elements which, in operation, image-wise form dots of a marking substance of a second size different from said first size, on said image-receiving member, the computer program product comprising computer-executable instructions for:

selecting a print mask defining a number S and a sequence of printing stages required to completely render said pattern of image pixels, S being an integer number of at least 2;

image-wise activating on the basis of said print mask at least a part of an effective number of discharging elements N_{eff}, where $N_{eff} \leq N$; and

intermittently displacing on the basis of said print mask said image-receiving member in the sub-scanning direction over a distance M;

wherein said distance M is determined and said effective number of discharging elements N_{eff} is selected from said plurality of N discharging elements on the basis of the difference between said first size and said second size in order to limit the visibility of systematic banding artifacts in the sub scanning direction.

18. (Currently amended)The computer program product of claim 17, wherein means are provided for determining said distance M and said effective number of discharging elements N_{eff}, ~~are determined~~ by combining at least said number of printing stages S, a certain number q of said groups of discharging elements, the printing pitch and the element pitch.

19. (Original)The computer program product of claim 17, wherein the following conditions are satisfied:

$N_{eff} = S \times [(n \times q) + 1] \times d$,

$S \times M = N_{eff} \times p \times P$, and

$p = 1$,

wherein n is an integer greater than or equal to 1,

p is a ratio between the element pitch and the printing pitch P,

d is a defect number and is defined as the number of subsequent printed image dots in the sub scanning direction originating from the same group of discharging elements when executing all the passes required to image-wise render all the pixels in the main scanning direction, and

q is a number of groups of nozzles yielding image dots with different sizes.

20. (Original)The computer program product of claim 17, wherein a ratio between the element pitch and the printing pitch is an integer number p of at least 2.